

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated January 27, 2005 has been received and its contents carefully reviewed.

By this Response, claims 1 and 5 have been amended, claim 3 has been cancelled without prejudice or disclaimer of the subject matter recited therein, and new claim 29 has been added. No new matter has been added. Claims 1-2, 4-9 and 11-29 are pending in the application with claims 6, 8, 16 and 21-28 being withdrawn from consideration. Applicant kindly acknowledges the withdrawal of the objection and rejection to claim 7. Reconsideration and withdrawal of the rejection in view of the above amendments and the following remarks are respectfully requested.

In the Office Action, claims 1, 11 and 20 are objected to because of informalities. Applicant has amended claim 1. Thus, Applicant submits the objection to claim 1 and its dependent claims 11 and 20 is overcome. Withdrawal of the objection is respectfully requested.

In the Office Action, claims 3 and 5 are objected to because of informalities. Applicant has cancelled claim 3 without prejudice, and amended claim 5. Accordingly, the objections are overcome. Withdrawal of the objections are respectfully requested.

In the Office Action, claims 1 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,130,729, issued to Oh et al. (hereafter "Oh") in view of U.S. Patent No. 6,573,965, issued to Liu et al. (hereafter "Liu") and further in view of U.S. Patent No. 6,055,035, issued to Von Gutfeld et al. (hereafter "Von Gutfeld"). Applicant respectfully traverses the rejection because neither Oh, Liu nor Von Gutfeld, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of the present application. For example, Oh, Liu and Von Gutfeld fail to teach or suggest a method of forming a liquid crystal display device that includes, among other features, "dispensing liquid crystal in discrete areas on the first substrate, wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate" as recited in independent claim 1.

The Office Action states on page 6 of the Office Action that Oh does not explicitly disclose the combined features of the present application, and relies upon the teachings of Liu and Von Gutfeld to remedy the deficient teachings of Oh.

However, Applicant respectfully submits neither Liu nor Gutfeld provide any teaching or suggestion of “wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate” as recited in independent claim 1 of the present application. In Von Gutfeld, a layer of liquid crystal is deposited using a scanning method, i.e., a nozzle is used “for emitting liquid crystal material, a scanning unit for scanning the nozzle to apply a predetermined amount of liquid crystal material, preferably in a single scan, over an entirety of a surface of the first panel plate at atmospheric pressure” (col. 2, lines 56-60). And, in Liu, the bumps (corresponding to dielectric frames) are formed on both the lower and upper substrates. Therefore, if the teachings of Von Gutfeld and Liu were combined, as suggested in the Office Action, the bumps of Liu, as also discussed with regard to the related art of the present application, would “hinder the movement of the liquid crystal” (see, specification, paragraph [0021]).

As such, Von Gutfeld and Liu fail to remedy the deficient teachings of Oh such that one of ordinary skill in the art would be motivated to modify Oh to provide “a dielectric frame having a first height ... on a second substrate” and “dispensing liquid crystal in discrete areas on the first substrate, wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate” as recited in claim 1 of the present application. Accordingly, no combination of Oh, Liu and Gutfeld would provide a method of forming a liquid crystal display having the combined features of the present application. Reconsideration and withdrawal of the rejection are respectfully requested.

In the Office Action, claims 11 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh, Liu and Von Gutfeld and further in view of U.S. Patent No. 6,515,718, issued to Kishimoto et al. (hereafter “Kishimoto”). Applicant respectfully traverses the rejection because neither Oh, Liu, Von Gutfeld nor Kishimoto, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of the present application. For example, Oh, Liu, Von Gutfeld and Kishimoto fail to teach or suggest a method of forming a liquid crystal display device that includes, “forming a dielectric frame having a first height and a

sealant structure having a second height on a second substrate... dispensing liquid crystal in discrete areas on the first substrate, wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate” as recited in independent claim 1, from which claims 11 and 20 depend.

Kishimoto discloses a device having dielectric structures 120, and “by adjusting the thickness of the dielectric structure 120, the thickness of the liquid crystal layer 109 in the periphery zone is controlled” (col. 18, lines 12-15). “Therefore, the thickness of the dielectric structure 120 should be determined in consideration of the relative dielectric constants of the respective components” (col. 18, lines 21-23). However, Kishimoto fails to teach or suggest “forming a dielectric frame having a first height and a sealant structure having a second height on a second substrate... dispensing liquid crystal in discrete areas on the first substrate, wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate” as recited in independent claim 1. Thus, Kishimoto fails to remedy the deficient teachings of Oh, Liu, and Von Gutfeld.

Because Oh, Liu, Von Gutfeld and Kishimoto fail to teach or suggest at least these features of claim 1, claim 1 and its dependent claims 11 and 20 are allowable over any combination of Oh, Liu, Von Gutfeld and Kishimoto. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh, Liu and Von Gutfeld and further in view of U.S. Patent No. 6,603,528, issued to Tanaka et al. (hereafter “Tanaka”). And, claims 17-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Oh, Liu and Von Gutfeld and further in view of U.S. Patent No. 6,100,953, issued to Kim et al. (hereafter “Kim”). Applicant respectfully traverses the rejections because neither Oh, Liu, Von Gutfeld, Tanaka, nor Kim, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of the present application. For example, Oh, Liu, Von Gutfeld, Tanaka and Kim fail to teach or suggest a method of forming a liquid crystal display device that includes “forming a dielectric frame having a first height and a sealant structure having a second height on a second substrate... dispensing liquid crystal in discrete areas on the

first substrate, wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate” as recited in independent claim 1.

The Office Action has cited Tanaka for teaching the use of polyimide as a material suitable for “forming an alignment film for liquid crystal displays” (col. 9, lines 18-20), and cites Kim for the “use of negative uniaxial and negative biaxial phase compensation films as suitable means of improving viewing angle performance (col. 5, line 66 - col. 6, line 12). However, neither Tanaka nor Kim provides teachings which would remedy the deficient teachings discussed above with respect to Oh, Liu and Von Gutfeld. Specifically, Tanaka and Kim fail to teach or suggest “forming a dielectric frame having a first height and a sealant structure having a second height on a second substrate... dispensing liquid crystal in discrete areas on the first substrate, wherein the dispensed liquid crystal moves and is uniformly distributed on the first substrate” as recited in independent claim 1 of the present application.

Because Oh, Liu, Von Gutfeld, Tanaka and Kim fail to teach or suggest at least these features of independent claim 1, claim 1 and its dependent claim 15 and 17-19 are allowable over any combination of Oh, Liu, Von Gutfeld, Tanaka and Kim. Reconsideration and withdrawal of the rejections are respectfully requested.

~~Applicant believes the foregoing amendments place the application in condition for~~
allowance and early, favorable action is respectfully solicited. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

Application No.: 10/015,701

Docket No.:8733.479.00

Response dated April 25, 2005

Reply to Non-Final Office Action dated January 27, 2005

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Dated: April 25, 2005

Respectfully submitted,

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